

CLAIMS

What is claimed is:

1. A modular ankle implant comprising:
a tibial component having a tibial dome and a tibial flange;
a talar component; and
a bearing matingly articulating with the talar component, the bearing having a bearing dome mating with the tibial dome for relative rotation therebetween, and a bearing flange engaging the tibial flange to limit rotation of the bearing relative to the tibial component.
2. The ankle implant of claim 1, wherein the bearing and the talar component articulate over a doubly-curved surface for relative movement therebetween.
3. The ankle implant of claim 2, wherein the doubly-curved surface has curvatures in two mutually perpendicular planes.
4. The ankle implant of claim 1, wherein the tibial and bearing domes are selected from the group consisting of sphere, cylinder, cone and portions thereof.

5. The ankle implant of claim 1, wherein the tibial component includes a rib structure over a convex surface of the tibial dome.

6. The ankle implant of claim 1, wherein the bearing dome has a convex surface articulating with a concave surface of the tibial dome.

7. A modular ankle implant for implantation between a tibia and a talus, the implant comprising:

a tibial component having an annular plate, a tibial dome and a tibial flange, wherein the dome has convex and concave surfaces that are bounded by the annular plate, and wherein the tibial flange extends from one side of the annular plate;

a talar component having a doubly-curved surface; and

a bearing having a bottom surface, a bearing dome and a bearing flange, wherein the bottom surface matingly articulates with the doubly-curved surface of the talar component for hinged movement therebetween, the bearing dome has a convex surface mating with the concave surface of the tibial dome for relative rotation therebetween, and the bearing flange interacts with the tibial flange to limit rotation of the bearing relative to the tibial component.

8. The ankle implant of claim 7, wherein the tibial and bearing domes are selected from the group consisting of sphere, cylinder, cone and portions thereof.

9. The ankle implant of claim 7, wherein the tibial component includes a rib structure over the convex surface of the tibial dome for implantation into a tibia.

10. The ankle implant of claim 7, wherein the tibial component includes posts extending from the plate for implantation into the tibia.

11. The ankle implant of claim 7, wherein the talar component has a ridged structure for implantation into the talus.

12. The ankle implant of claim 7, wherein the doubly-curved surface has curvatures in two mutually perpendicular planes.

13. A modular ankle implant comprising a tibial component coupled to a talar component with a bearing wherein the bearing is adapted for hinged articulation relative to the talar component and limited rotation relative to the tibial component.

14. The ankle implant of claim 13, wherein hinged articulation includes flexion in a sagittal plane and rotation in a coronal plane.

15. The ankle implant of claim 13, wherein limited rotation relative to the tibial component includes rotation in a transverse plane.

16. The ankle implant of claim 15, wherein limited rotation includes a range of about 5° to 10°.

17. The ankle implant of claim 13, wherein rotation between the bearing and the tibial component is limited by engagement of parallel flanges extending respectively from the bearing and the tibial component.

18. The ankle implant of claim 13, wherein rotation between the bearing and the tibial component is effected by engagement of conforming domes extending respectively from the bearing and the tibial component.

19. The ankle implant of claim 13, wherein hinged articulation includes articulation between conforming doubly-curved surfaces of the bearing and the talar component.

20. The ankle implant of claim 18, further comprising radial ribs extending from the dome of the tibial component.

21. The ankle implant of claim 20, wherein the tibial component includes posts for tibial anchoring.

22. The ankle implant of claim 21, wherein the posts are at the ends of the radial ribs.

23. The ankle implant of claim 13, wherein the tibial component includes a pocket for receiving a dome of the bearing.

24. The ankle implant of claim 23, wherein the pocket includes protrusions limiting rotation of the bearing relative to the tibial component.

25. The ankle implant of claim 23, wherein the pocket and the dome have articulating surfaces selected from the group consisting of sphere, cylinder, cone, and portions thereof.

26. A method for implanting an ankle joint prosthesis between a tibia and a talus, the method comprising:

attaching a tibial component to the tibia;

attaching a talar component to the talus;

articulating a bearing for limited rotation relative to the tibial component and hinged movement relative to the talar component.

27. The method of claim 26, wherein limited rotation includes rotation constrained by conforming flanges extending respectively from the tibial component and the bearing.

28. The method of claim 26, wherein hinged movement includes movement between two conforming doubly curved surfaces of the bearing and the talar component.

29. The method of claim 26, wherein rotation is effected by engagement of conforming domes extending respectively from the bearing and the tibial component.

30. The method of claim 26, wherein rotation is effected by engagement of conforming articulating surfaces between a pocket defined in the tibial component and a dome extending from the bearing.

31. The method of claim 30, wherein limited rotation includes rotation constrained by protrusions defined in the pocket of the tibial component.

32. A modular ankle implant comprising:
a first component having a first dome; and
a second component having a second dome articulating with the first dome for relative rotation therebetween in a transverse plane.

33. The ankle implant of claim 32, further comprising a third component articulating with the second component for relative movement in sagittal and coronal planes.

34. The ankle implant of claim 32, wherein the first component is a tibial component attachable to a tibia.

35. The ankle implant of claim 33, wherein the third component is a talar component attachable to a talus.

36. The ankle implant of claim 35, wherein the second component is a bearing articulating with the first and second components.

37. The ankle implant of claim 32, wherein the first and second components include first and second articulating flanges for limiting rotation in the transverse plane.

38. The ankle implant of claim 32 wherein the first dome is a pocket having protrusions for limiting articulation of the second dome with the first dome.

39. The ankle implant of claim 32, wherein the first and second domes are selected from the group consisting of sphere, cylinder, cone and portions thereof.